# BRIDGE INSPECTION REPORT

Status: Released | Printed On: 6/2/2021 | Agency: Washington State

CD Guid: 1a370985-c5ed-4df5-aa76-cd61dd8db251 | Release Date: 5/5/2021 | Program Mgr: Evan M Grimm

**Br. No.** 167/121E **SID** 0008114A **Br. Name** GREEN RIVER

**Carrying** SR 167 **Route On** 00167 **Mile Post** 19.04

**Intersecting** GREEN RIVER **Route Under** **Mile Post**

SIGNATURE ON FILE

Inspector's Signature FPP Cert # G0710 Cert Exp Date 5/11/2022 Co-Inspector's Signature RAB

## Inspections Performed

| Report Type | Inspection Type | Date | Freq | Hours | Inspector | Cert No | Co-Insp. |
|---|---|---|---|---|---|---|---|
| Routine | | 4/10/2021 | 24 | 1.0 | FPP | G0710 | RAB |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | | Alignment | (1661) | 52 | | Operating Tons | (1552) | 1 | | Bridge Rails | (1684) |
| 7 | | Deck Overall | (1663) | | | Op RF | (1553) | 1 | | Transition | (1685) |
| 6 | | Superstructure | (1671) | 31 | | Inventory Tons | (1555) | 1 | | Guardrails | (1686) |
| 7 | | Substructure | (1676) | | | Inv RF | (1556) | 0 | | Terminals | (1687) |
| 9 | | Culvert | (1678) | 5 | | Operating Level | (1660) | 32.0 | | Bridge Rail Ht | (2612) |
| 7 | | Chan/Protection | (1677) | A | | Open/Closed | (1293) | | | Design Curb Ht | (2611) |
| N | | Pier/Abut/Prot | (1679) | 6 | | Structural Eval | (1657) | | | | |
| 8 | | Waterway | (1662) | 6 | | Deck Geometry | (1658) | | | | |
| 5 | | Scour | (1680) | 9 | | Underclearance | (1659) | | | | |

| | | | |
|---|---|---|---|
| 0 | | No Utilities | (2675) |
| 0.00 | | Asphalt Depth | (2610) |
| 1967 | | Year Built | (1332) |
| 1998 | | Year Rebuilt | (1336) |

| NBIS Risk Category |
|---|
| Routine: Low Risk |
| Underwater: No Risk Category |

## Inspection Flags

| | | | | |
|---|---|---|---|---|
| Soundings (2693) | Measure Clearance (2694) | Revise Rating (2688) | Photos (2691) | QA Flag (2695) |

## BMS Elements

| Element | Element Description | Total | Units | CS 1 | CS 2 | CS 3 | CS 4 |
|---|---|---|---|---|---|---|---|
| 12 | Concrete Deck | 9399 | SF | 9395 | 4 | 0 | 0 |
| 26 | Concrete Deck w/Coated Bars | 3856 | SF | 3856 | 0 | 0 | 0 |
| 35 | Concrete Deck Soffit | 13255 | SF | 13252 | 2 | 1 | 0 |
| 105 | Concrete Box Girder | 134 | LF | 126 | 4 | 4 | 0 |
| 115 | Prestressed Concrete Girder | 832 | LF | 827 | 0 | 5 | 0 |
| 200 | Abutment Fill | 2 | EA | 2 | 0 | 0 | 0 |
| 205 | Concrete Pile/Column | 16 | EA | 16 | 0 | 0 | 0 |
| 215 | Concrete Abutment | 116 | LF | 116 | 0 | 0 | 0 |
| 227 | Concrete Submerged Pile/Column | 4 | EA | 4 | 0 | 0 | 0 |
| 310 | Elastomeric Bearing | 16 | EA | 16 | 0 | 0 | 0 |
| 331 | Concrete Bridge Railing | 482 | LF | 482 | 0 | 0 | 0 |
| 361 | Scour | 2 | EA | 1 | 0 | 1 | 0 |
| 370 | Seismic - Longitudinal Restrainer | 10 | EA | 10 | 0 | 0 | 0 |
| 400 | Asphalt Butt Joint Seal | 110 | LF | 55 | 0 | 55 | 0 |
| 405 | Compression Seal / Polymer Header | 110 | LF | 0 | 110 | 0 | 0 |
| 803 | Modified Concrete Overlay | 13255 | SF | 13251 | 4 | 0 | 0 |

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**Carrying** SR 167 **Route On** 00167 **Mile Post** 19.04

**Intersecting** GREEN RIVER **Route Under** **Mile Post**

## Notes

| | |
|---|---|
| 0 | Bridge is oriented south to north and carries NB traffic.<br>Span 2A is the south box girder cantilever span.<br>Span 2B is the prestressed girder drop-in span.<br>Span 2C is the north box girder cantilever span. |
| 12 | Deck is covered with a concrete overlay. See element 803. |
| 26 | Concrete deck with epoxy coated rebar includes the portion of the deck within 16 ft. of the west rail. Deck is covered with a concrete overlay. See element 803. |
| 35 | Soffit has transverse leaching cracks with vertical leaching cracks in the edges.<br>Spans 2A and 2C soffit inside of the restrainer hatches have plywood formwork left in place at a few locations.<br>Span 2A has a 6" x 6" x 1/2" deep spall in the east overhang.<br>Span 2B has an 18" x 8" patch in the east overhang. |
| 105 | Webs have diagonal hairline cracks over the intermediate piers.<br>Bottom of boxes have scattered small shallow spalls and exposed rebar due to lack of cover, up to 8" in length.<br>Span 2 girder seats and stops at the south and north in-span hinges are integral with box girder spans. Girder stops have corner spalls and debris buildup around them. See photo #8.<br>Span 2C bottom of box has diagonal rusty cracks.<br>Span 2C near the hatches has approximately 3 sq. ft. of patching.<br>Span 3 bottom of box has impact damage that has been patched and has scrapes over the bike path at the NE side below the vertical clearance sign. |
| 115 | Girder bottom flanges have scattered area of exposed rebar due to lack of cover and some small patches up to 6" in diameter.<br>The ends have delaminations/spalls in some locations at in-span hinges, up to 12" in length.<br>Girder 2C has a corner spall in the bottom flange at the south end and 20" of exposed rebar in the bottom flange near midspan.<br>Girder 2E has a corner spall in the bottom flange at the north end with exposed strands/rebar.<br>Girder 2G has a corner spall in the bottom flange at the north end with exposed strands/rebar and a 3" x 1-1/2" x 1" deep spall in the web.<br>Girder 2H has a corner spall in the bottom flange at the north end with exposed strands/rebar. See photo #10.<br>REPAIR #14250. |
| 205 | Pier 2 columns have construction scrapes and spalls. |
| 227 | Column 3A has 4 ft. of exposed shaft casing. See photo #6. |
| 310 | Several bearings have shifted off the grout pads at the corners.<br>South in-span bearings 2E, 2G, 2H overhang grout pads up to 1". See photo #4.<br>North in-span bearing 2C overhangs grout pad up to 3/4". |
| 331 | Bridge rails have vertical leaching cracks. |
| 361 | Green River flows east to west under Span 2.<br>South bank has some sloughing under the bridge. See photo #13.<br>North bank has light scattered riprap under the bridge. |
| 370 | There are five longitudinal restrainers at each in-span hinge.<br>Span 2C west and center hatches had the locks cut off with bolt cutters during the 2017 inspection due to corrosion preventing them from opening in order to inspect the seismic restrainers. |
| 400 | South joint is saw cut and is sealed. The north joint is not saw cut and sealed.<br>South joint patches that are breaking up and a 1 ft. x 8" x 3" deep pothole in the right lane have been repaired.<br>North abutment joint has minor edge spalls the largest is 12" x 3". See photo #23. |
| 405 | Joints at Span 2 hinges have been rebuilt with polymer headers.<br>South hinge has a few scattered patches and is leaking.<br>North hinge has a small patch in the HOV lane. |
| 803 | Overlay is worn to aggregate in the wheel lines with a few scattered transverse and longitudinal hairline cracks.<br>Spans 2 and 3 have scattered popouts in the deck 2"- 4" in diameter. See photo #22.<br>Span 2 right lane has approximately 4 sq. ft. of scattered patches. |

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## Notes (Continued)

1677 Banks have soft silts with heavy vegetation up and downstream, some undercutting of vegetation in places. See element 361.

1680 A major channel migration would be required for the calculated scour depth to occur. Piers 2 and 3 have 2'-6" thick seals and 4'-0" thick pile caps.

1687 Terminals are not slotted.

## Repairs

| Repair No | Pr | R | Repair Descriptions | BMS | Noted | Maint | Verified |
|---|---|---|---|---|---|---|---|
| **14250** | 2 | B | Scale loose concrete around spalls in bottom flange corner ends of Girders 2C, 2E, 2G and 2H. Clean rusty bars and coat exposed bars with rust inhibiting paint.<br><br>(4/13/2013 - Repair rewritten. TKK/RAA) | 115 | 4/4/2009 | | |

## Inspections Performed and Resources Required

| Report Type | Date | Freq | Hrs | Insp | CertNo | Coinsp | Note |
|---|---|---|---|---|---|---|---|
| **Routine** | 4/10/2021 | 24 | 1.0 | FPP | G0710 | RAB | UBIT is required on a 48 month frequency to inspect Span 2 at hinges, bearings, seismic restrainers and to access hatches. |

| Resources | Hours | Min | Pref | Max | Freq | Date | Need Date | Override | Notes |
|---|---|---|---|---|---|---|---|---|---|
| SNDG | | | | | 72 | 4/30/2017 | 4/30/2023 | | See the Files Tab for further information. |
| UBIT | 1.50 | 62 | 62 | 62 | 48 | 4/10/2021 | 4/10/2025 | | UB62 is required for 58 ft. out-to-out width. |
| Attenuator | 2.00 | ST | ST | ST | | | | | Attenuator was used for protection of the UBIT and during traffic control setup and takedown. |
| Flagging | 2.00 | ST | ST | ST | | | | | Contact NWR at (425) 339-1778 to arrange for traffic control. |
| Keys | | | | | | | | | Key NM-70 needed for restrainer hatches in soffit (BPO keybox sets #95 to #98). |
| Scheduling Restrictions | | TRFC | TRFC | TRFC | | | | | 2021 Inspection work window: Weekends 6:00am - 7:30am |

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
NBI STRUCTURE INVENTORY AND APPRAISAL REPORT
(ENGLISH UNITS)

CD Date: 4/10/2021 Printed on: 6/2/2021
CD Guid: 1a370985-c5ed-4df5-aa76-cd61dd8db251

## IDENTIFICATION

| | | |
|---|---|---|
| (1) | STATE NAME - WASHINGTON | 530 |
| (8) | STRUCTURE NUMBER | # 0008114A0000000 |
| (5) | INVENTORY ROUTE (ON/UNDER) - On | 1 3 1 00167 |
| | STATE ROUTE MILEPOST | 19.04 |
| (2) | HIGHWAY AGENCY DISTRICT - NW Region | 01 |
| (3) | COUNTY CODE 33 - King County | (4) PLACE CODE 00000 |
| (6) | FEATURES INTERSECTED | GREEN RIVER |
| (7) | FACILITY CARRIED | SR 167 |
| (9) | LOCATION | 4.3 N JCT SR 18 |
| (12) | BASE HIGHWAY NETWORK - Part of network | 1 |
| (13) | LRS INV ROUTE AND SUB ROUTE | 16700 |
| (11) | LRS MILEPOST | 19.04 |
| (16) | LATITUDE | 47 Deg 22 Min 10.80 Sec |
| (17) | LONGITUDE | 122 Deg 14 Min 39.50 Sec |
| (98A) | BORDER BR. - Not a border bridge (98B) | (99) BORDER BR. SID - Not a border bridge |

## STRUCTURE TYPE AND MATERIAL

| | | |
|---|---|---|
| (43) | STRUCTURE TYPE MAIN: MATERIAL - Prestressed concrete<br>DESIGN - Stringer/multi-beam | 502 |
| (44) | STRUCTURE TYPE APPR: MATERIAL - Concrete continuous<br>DESIGN - Box beam/girder - multiple | 205 |
| (45) | NO. OF SPANS IN MAIN UNIT | 1 |
| (46) | NO. OF APPROACH SPANS | 2 |
| (107) | DECK STRUCTURE TYPE - Conc. CIP | 1 |
| (108) | WEARING SURFACE / PROTECTIVE SYSTEM: | |
| (A) | TYPE OF WEARING SURFACE - LMC or similar | 3 |
| (B) | TYPE OF MEMBRANE - None | 0 |
| (C) | TYPE OF DECK PROTECTION - None | 0 |

## AGE AND SERVICE

| | | |
|---|---|---|
| (27) | YEAR BUILT | 1967 |
| (106) | YEAR RECONSTRUCTED | 1998 |
| (42) | TYPE OF SERVICE ON - Highway | 1 |
| | UNDER - Waterway | 5 |
| (28) | LANES: ON STRUCTURE 3 | UNDER STRUCTURE 0 |
| (29) | AVERAGE DAILY TRAFFIC | 69129 |
| (30) | YEAR OF ADT 2019 | (109) TRUCK ADT 10% |
| (19) | BYPASS, DETOUR LENGTH | 1 mi |

## GEOMETRIC DATA

| | | |
|---|---|---|
| (48) | LENGTH OF MAXIMUM SPAN | 150 ft |
| (49) | STRUCTURE LENGTH | 241 ft |
| (50) | CURB OR SIDEWALK: LEFT 0.0 ft | RIGHT 0.0 ft |
| (51) | BRIDGE ROADWAY WIDTH CURB TO CURB | 54.0 ft |
| (52) | DECK WIDTH OUT TO OUT | 57.2 ft |
| (32) | APPROACH ROADWAY WIDTH (W/SHOULDERS) | 54 ft |
| (33) | BRIDGE MEDIAN - No median | 0 |
| (34) | SKEW 8 Deg | (35) STRUCTURE FLARED No 0 |
| (10) | INVENTORY ROUTE MIN VERT CLEAR | 99 ft 99 in |
| (47) | INVENTORY ROUTE TOTAL HORIZ CLEAR | 54 ft 00 in |
| (53) | MIN VERT CLEAR OVER BRIDGE RDW | 99 ft 99 in |
| (54) | MIN VERT UNDERCLEAR | 0 ft 00 in N |
| (55) | MIN LAT UNDERCLEAR RT | 0.0 ft N |
| (56) | MIN LAT UNDERCLEAR LT | 0.0 ft |

## NAVIGATION DATA

| | | |
|---|---|---|
| (38) | NAVIGATION CONTROL - No nav control | 0 |
| (111) | PIER PROTECTION - Not Applicable | |
| (39) | NAVIGATION VERTICAL CLEARANCE | 000 ft |
| (116) | VERT-LIFT BRIDGE NAV MIN VERT CLR | |
| (40) | NAVIGATION HORIZONTAL CLR | 0000 ft |

## WSBIS DATA

| | |
|---|---|
| BRIDGE NUMBER | 167/121E |
| BRIDGE NAME | GREEN RIVER |
| CUSTODIAN | Washington State |
| CROSSING DESC | GREEN RIVER |
| MAIN LISTING FLAG | M |
| SUFFICIENCY RATING | 90.39 Not SD or FO |

## CLASSIFICATION

| | | |
|---|---|---|
| (112) | NBIS BRIDGE LENGTH | Y |
| (104) | HIGHWAY SYSTEM - On the NHS | 1 |
| (26) | FUNCTIONAL CLASS - Prin Arterial - Other Fwy or Expwy | 12 |
| (100) | DEFENSE HIGHWAY - Not a STRAHNET route | 0 |
| (101) | PARALLEL STRUCTURE - Right Hand | R |
| (102) | DIRECTION OF TRAFFIC - 1-way traffic | 1 |
| (103) | TEMPORARY STRUCTURE - Not Applicable | |
| (105) | FEDERAL LANDS HIGHWAY - Not Applicable | 0 |
| (110) | DESIGNATED NATIONAL NETWORK - Part of network | 1 |
| (20) | TOLL - Non-toll structure | 3 |
| (21) | MAINTENANCE - State Highway Agency | 01 |
| (22) | OWNER - Washington State | 1 |
| (37) | HISTORICAL SIGNIFICANCE - Not eligible | 5 |

## CONDITION

| | | |
|---|---|---|
| (58) | DECK | 7 |
| (59) | SUPERSTRUCTURE | 6 |
| (60) | SUBSTRUCTURE | 7 |
| (61) | CHANNEL AND CHANNEL PROTECTION | 7 |
| (62) | CULVERTS | N |

## LOAD RATING AND POSTING

| | | |
|---|---|---|
| (31) | DESIGN LOAD - HS 20+Mod | 6 |
| (63) | OPER RATING METHOD - Ld Factor (LFR) tons HS20 | 1 |
| (64) | OPERATING RATING | 52 T |
| (65) | INV RATING METHOD - Ld Factor (LFR) tons HS20 | 1 |
| (66) | INVENTORY RATING | 31 T |
| (70) | BRIDGE POSTING - Equal or above legal loads | 5 |
| (41) | STRUCT OPEN, POSTED, CLOSED - Open, no restrictions | A |

## APPRAISAL

| | | |
|---|---|---|
| (67) | STRUCTURAL EVALUATION | 6 |
| (68) | DECK GEOMETRY | 6 |
| (69) | UNDERCLEARANCES, VERTICAL & HORIZONTAL | N |
| (71) | WATERWAY ADEQUACY | 8 |
| (72) | APPROACH ROADWAY ALIGNMENT | 8 |
| (36) | TRAFFIC SAFETY FEATURES | 1110 |
| (113) | SCOUR CRITICAL BRIDGE | 5 |

## PROPOSED IMPROVEMENTS

| | | |
|---|---|---|
| (75) | TYPE OF WORK - | 351 |
| (76) | LENGTH OF STRUCTURE IMPROVEMENT | 241 ft |
| (94) | BRIDGE IMPROVEMENT COST | $2,699,000 |
| (95) | ROADWAY IMPROVEMENT COST | $540,000 |
| (96) | TOTAL PROJECT COST | $5,398,000 |
| (97) | YEAR OF IMPROVEMENT COST ESTIMATE | 2014 |
| (114) | FUTURE ADT | 97610 |
| (115) | YEAR OF FUTURE ADT | 2039 |

## INSPECTIONS

| | | | |
|---|---|---|---|
| (90) | INSPECTION DATE 04/21 | (91) FREQUENCY 24 MO | |
| (92) | CRITICAL FEATURE INSPECTION: | | (93) CFI DATE |
| | (A) FRACTURE CRIT DETAIL - NO - | Month | (A) __/__ |
| | (B) UNDERWATER INSP - NO - | Month | (B) __/__ |
| | (C) OTHER SPECIAL INSP - NO - | Month | (C) __/__ |